

U.S. Environmental Protection Agency
Region III

Sample Submission Guidelines

Eighth Edition

Environmental Services Division
Office of Analytical Services and Quality Assurance
OASQA

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Environmental Science Center
701 Mapes Road
Fort Meade, Maryland 20755

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Region III OASQA Sample Submission Guidelines

1.0 INTRODUCTION

These guidelines have been prepared to document the procedures that are to be followed when submitting samples to the Office of Analytical Services and Quality Assurance (OASQA) Laboratory located at Ft. Meade, Maryland. *These procedures will help ensure that the field and laboratory aspects of the sampling event are linked in a way to produce reliable data.* Much has been done to document the quality of the data produced by the laboratory. The sample collection and handling process that precedes laboratory analysis is equally important. Samples must be representative of the matrix being studied, must be collected using methods that will maintain sample integrity, and must be properly preserved to avoid chemical or biological changes. As a regulatory agency, EPA makes many technical decisions based on environmental data; it is essential that the information be accurate and defensible.

2.0 PROJECT SCHEDULING

All analytical requests are scheduled through the *Client Services Team* before samples are submitted to the laboratory. An approved Quality Assurance Project Plan (QAPP) with appropriate Data Quality Objectives (DQOs) should be in place before project scheduling.

Client Services Team contacts:

Khin Cho Thaung	410-305-2743 (ph)	410-305-3095 (fax)	thaung-khin-cho@epa.gov
Dan Slizys	410-305-2734 (ph)	410-305-3095 (fax)	slizys.dan@epa.gov

2.1 Method Selection

The OASQA Lab provides a wide array of environmental analytical techniques using approved test methods. These methods are documented procedures for measuring the presence and concentration of physical and chemical pollutants at varying levels of quantitation. The requestor selects test methods and quantitation limits which will support the project's Data Quality Objectives. The Client Services Team is available for assistance in the selection of appropriate tests for your project.

2.2 Quantitation Limits

The OASQA Lab has established nominal quantitation limits (NQLs) for all of its analytical methods at levels needed to satisfy most programmatic requirements. The NQL is defined as the quantitation limit that would be achieved under typical analytical procedures. The actual quantitation limit (AQL), or reporting limit, is found by mathematically correcting the NQL for any differences in typical sample size, weight, dilution, concentration or other analytical requirements. For further details on specific NQL lists, please contact the Client Services Team.

2.3 Shipment Notification

Always notify the *Sample Scheduling Coordinator (SSC)* when samples have been shipped. In addition, notify the SSC as soon as possible if a scheduled shipment has been canceled or there

are any changes in the number or types of samples. These changes may affect the laboratory's scheduled workload. **All notifications or changes should be phoned, faxed, or e-mailed on or BEFORE the expected shipping date.** Samples shipments cannot be accepted after normal working hours (7:30am - 4:30pm), on weekends or Federal Holidays.

Sample Scheduling Coordinator (SSC)

Patricia Sosinski 410-305-2667 (ph) 410-305-3093 (fax) sosinski.pat@epa.gov

Secondary Contacts/Sample Managers

Carroll Harris 410-305-2625 (ph) 410-305-3093 (fax) harris.carroll@epa.gov

Tom Reppert 410-305-2613 (ph) 410-305-3093 (fax) reppert.tom@epa.gov

Analytical Team 410-305-2600 (ph) 410-305-3093 (fax)

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NOTE: *If any part of the Sample Submission Guidelines is unclear or if you want to verify the requirements for collection and shipping, please call one of the contacts listed above.* Many times problems can be avoided if issues are clarified before the samples are sent. In addition, if there is a need for parameters not listed in this document, the laboratory may be able to accommodate special requests if notified well in advance. Please call the Clients Services Team contacts listed in Section 2.0 for information in this regard.

3.0 SAMPLING

Proper collection and identification of samples, documentation of the collection event (in permanent field records), and submittal of required paperwork (i.e., COC, exposure sheets) are all essential parts of a successful sampling program. When samples are not properly collected, preserved, or shipped, the laboratory reserves the right to reject the samples due to the possibility of producing compromised data. The requestor will be notified and given the opportunity to resample. Refer to the Sample Acceptance/Rejection Policy (Attachment 3). In some cases it may be possible for the laboratory to complete the analysis with some alteration. For example, if there is insufficient sample volume, the data may have to be reported with increased quantitation limits or the requestor may have to be notified and asked to prioritize analytical preferences.

3.1 Collection Requirements

TABLEs I, II and III of this guideline show preservatives, minimum volumes/weights, container types and holding times for aqueous and non-aqueous samples submitted to OASQA.

IMPORTANT: All differences due to the requirements of the drinking water program (SDWA), are listed in TABLE III. In addition, the TABLE FOOTNOTES summarize the

critical information needed for sample collection. It is essential that these guidelines be followed so that reliable data is produced that meets the needs of the project.

3.2 Holding Times

Samplers must be aware of the holding times for all analyses requested and ship samples to OASQA as quickly as possible. Holding times are calculated *from the time and date of sample collection* and not the date of receipt at the lab. To ensure that OASQA can meet the required holding time, all samples collected should be sent to the lab at the end of each collection day. Data from samples analyzed past the stated holding time must be carefully examined by the data user. These values may be biased low due to possible loss of the parameter(s) of interest, and they will be flagged by the laboratory as such.

3.3 Sample Types

Sample collection types normally used are defined as follows:

Grab sample - An individual sample collected over a period of time generally not exceeding 15 minutes. A grab sample is normally associated with water or wastewater sampling. However, soil, solid, oil, sediment, and liquid hazardous waste samples, for example, may also be considered grab samples.

Composite sample - A sample containing discrete aliquots (1) collected over a defined time period at equal time intervals (time composite), (2) collected in volumes proportional to the flow rate (flow proportional composite), or (3) composited from individual grab samples collected on an area or cross-sectional basis (area composite).

Field Duplicate sample - Samples collected simultaneously from the same source under identical conditions into separate containers.

3.4 Blanks

Blank samples are used to identify potential sources of contamination during the sampling, storage and analytical process. Blanks should be specified as part of every QAPP or sampling plan. Samplers are strongly encouraged to review their project needs and document Data Quality Objectives (DQOs) for their projects.

All water used for blanks must be deionized lab-pure-water free from the parameter(s) of interest. The water may have to be tested prior to use and it is highly recommended that field blanks accompany all sample sets. (Commercially available HPLC water is not acceptable for most blank uses. HPLC water is not certified as “organic-free” and/or “metal-free”, and therefore, may contain compounds of interest). Blanks that are preserved must be prepared with the same stock and same volume of preservative that was used with the samples.

The blank types normally used are defined as follows:

Field blank (sample matrix blank) - Field blanks are analyte free materials closely resembling the sample matrix to be encountered in the actual sample(s). Containers, laboratory pure water and chemicals/reagents are transported to the field and exposed to the same conditions as field samples. Caps are removed from the containers and preservatives are added (if added to the samples) and other related steps are taken to provide the blank with exposure to contamination equivalent to that of the field samples. If dissolved analytes are being collected, a filtered field blank must be collected with each new lot of filters used.

Trip blank - Trip blanks are collected for volatiles only. These blanks are similar to field blanks with the exception that they are not exposed to field conditions (i.e. not opened). Preservatives are added and containers sealed prior to the sampling trip. Without ever being unsealed, they travel with the samples and sample collection equipment. They allow evaluation of contamination generated from sample containers and changes occurring during the shipping and laboratory storage process.

Rinsate or equipment blank - An equipment blank is a sample of laboratory pure water passed through the sampling equipment to test for cleanliness of the sampling equipment and for carry-over contamination. Equipment blanks will depend on the number of samplers used and will follow specifications set forth in the QAPP. These blanks will also be preserved in the same manner as the corresponding samples. A rinsate blank is a sample of laboratory pure water used as the final rinse of sampling equipment during sampling. This blank is also preserved in the same manner as the samples.

Microbiological Blank (sterile container blank) - This blank is required for bacteriological tests. A sterile sample container is taken to the field, opened and returned with the samples to the lab.

Temperature blank - A VOA vial filled with water should be included in the shipment. This will be used by the laboratory to verify the temperature of samples upon arrival.

3.5 Laboratory Quality Control

TABLES I, II, and III list only the minimum volumes or weights needed to perform a single analysis for each parameter. So, it is essential that the sampler be aware of the laboratory quality control (QC) requirements of a proper sampling event. **For each parameter, the laboratory will need 3 times the minimum volume for one sample per batch of 10 to use for analysis of a matrix spike and matrix spike duplicate for organic samples, and for a matrix spike and sample duplicate for inorganic samples.** If there are more than 10 samples per batch, another sample with extra volume should be collected for each group of ten. For example, in a set of 11 to 20 samples, there would be **two** samples used for quality control analysis.

It is extremely important that sufficient volume be collected for quality control analysis. This is especially true for organic analysis because of the large volume requirements. A liter of sample will be needed for EACH parameter and the volume for quality control analysis should be adjusted accordingly. For example, 6 liters will be needed for one

sample collected for typical organic analysis with QC (i.e., 3 liters for BNA plus 3 liters for PCB/Pest).

ON THE OTHER HAND, please do not collect any more volume than necessary; it is expensive to properly dispose of excess volume and is inefficient for both the sampler and laboratory. (See Section 4.0 POLLUTION PREVENTION.)

3.6 Sample Identification

The following documents must accompany the sample shipment for accurate identification and safety information. Contact the Sample Scheduling Coordinator for information on where to obtain these items.

Sample Tag - Each sample is to have a sample tag (Attachment 1) tied to the container and some type of adhesive label with identifying information. Each sample tag and label **must** be legibly written with **indelible (i.e. waterproof) ink**. The information that is written on the sample label must match the information on the chain-of-custody (COC) sheet. The sample tag is to be **tied** on **each** container so that it will not fall or slip off. Please do not use tape to secure labels or tags since it will loosen and fall off when the containers get cold or wet. No erasures or white outs are allowed. All errors must be corrected with a single line through the error, initialed and dated. For the safety of lab staff, indicate on each sample label and sample tag any preservative used for the samples.

Exposure data sheet - Each time samples are collected, it is the responsibility of the sampler to completely fill out a *Hazard and Risk Exposure Data Sheet* (Attachment 2). This information helps ensure the safety of the lab staff receiving the samples so that proper precautions are taken whenever potentially hazardous samples are encountered. This sheet is a vital part of the OASQA safety program and **MUST** be attached to the **OUTSIDE** of at least one shipping container so that it is available for review by the sample managers before opening any coolers or chests.

Chain-of-custody sheet (Chain of Custody Record) - A chain-of-custody (COC) sheet is required by OASQA and **must** accompany each sample shipment. (Contact OASQA Client Services Team for more specific information regarding the COC.) A sample shipment supplied without a COC may be rejected by the laboratory. **The COC should be sealed in a zip-locked bag and taped on the inside of the ice chest lid with the samples.** Always use indelible ink (never pencil) for all markings on the COC sheet. The original record must accompany the shipment with a copy retained by the sampler. Each distinct sample must appear on a separate line. NOTE: *Samples collected for dissolved constituents are considered distinct from the unfiltered aliquot and should be placed on a separate line.* It is NOT necessary to have a separate line for each container (or each sample tag). Any writing errors made on the custody sheet must be crossed out with a single line, initialed, dated and rewritten.

Chain-of-custody documentation **must** include:

- 1) site name (project name)
- 2) sampler's name/signature
- 3) station number

- 4) date and time of collection (recorded in 24 hour clock time)
- 5) type of sample (grab or composite)
- 6) sample station description (indicate if sample has been filtered for dissolved components or if it is a field duplicate)
- 7) number of containers
- 8) parameters requested (i.e., tests, methods)
- 9) sample tag numbers
- 10) date, time and signatures for sample receipt and transfer

If problems are found with the documentation or the physical condition of the samples upon arrival at the laboratory, the Sample Scheduling Coordinator may require a Letter-to-File from the sampler to document problems and corrective actions taken.

3.7 Shipping Requirements

Samples must be shipped in an absorbent material (i.e., vermiculite) to absorb any leakage and to prevent glass containers from breaking. Bags of ice (sealed to contain the melted water) should be used for cooling the samples. These bags must be packed around the samples themselves and not merely laid on top of the packed chest to ensure uniform cooling. **The loaded cooler should not be heavier than 50 pounds to allow for safe handling.**

SAMPLES PRESERVED BY CHILLING MUST BE SHIPPED WITH SUFFICIENT ICE TO REMAIN COOL AT 4°C WHILE IN TRANSIT. A temperature blank (ex. VOA vial filled with water) must be included in the shipment to allow the laboratory to verify the temperature upon receipt.

The entire contents of the chest must be enclosed in a large plastic bag, which not only contains the vermiculite packing material for ease of removal, but also is another barrier to prevent leakage if samples break during shipment. **As vermiculite is an inhalation hazard it cannot be overemphasized that this potentially harmful substance be contained in a plastic bag. The vermiculite will be returned if it is not properly packaged.** The chest must be sealed with strapping tape and custody seals on the outside. The custody seal (Attachment 1) must be placed so that it will be broken when the chest is opened. Department of Transportation (DOT) and/or Federal Express approved shipping containers must be used. *If the samples have been identified as 'environmental laboratory samples' such those defined in Appendix D of the Sample Shipping Procedures reference (5.1), then the shipment process is not regulated. In most cases, preserved water, wastewater, and sediment samples accepted by OASQA for analysis are considered environmental samples. If the samples have been classified as 'hazardous materials', only certified personnel are allowed to ship the containers, according to the Dangerous Goods Regulations promulgated by the International Air Transport Authority (IATA) (5.2). At least one member of the sampling team should be aware of the DOT and IATA legal requirements for shipping these types of materials.*

4.0 POLLUTION PREVENTION

The EPA OASQA facility is committed to the promotion of pollution prevention awareness and the Agency's waste reduction strategies. As part of this strategy, the lab requests that samplers take a common sense approach to the collection of samples with respect to how much volume is collected. Of course, the most important consideration must be the need for enough volume to constitute a representative sample, and to accommodate the analysis requested. But remember - **Many parameters can be combined together to avoid excess volumes.** Since the laboratory must dispose of the material after analyses and incur a cost that may become prohibitive, *if at all possible, please combine samples for all analytes requiring the same container and preservative in a minimum of containers.* Examples of parameters for aqueous samples which are commonly combined are (1) metals + mercury + hardness, (2) nutrients, and (3) ammonia, TOC, TP + TKN.

Parameters for solid samples have few preservative requirements, therefore, most inorganic (or organic parameters) can easily be combined in one container. An 8 oz. jar for either set of parameters would be adequate.

5.0 REFERENCES:

- 5.1 Appendix D - Sample Shipping Procedures, Environmental Investigations Standard Operating Procedures and Quality Assurance Manual, EPA Region 4, May 1996, (<http://www.epa.gov/region4/sesd/eisopqam/eisopqam.pdf>).
- 5.2 Dangerous Goods Regulations, International Air Transport Authority (IATA). Current Edition (document changes annually).
- 5.3 EPA Order 1000.18, February 16, 1979, (<http://epawww.epa.gov/rmpolicy/ads/transorders.htm>
- 5.5 "Final Regulation Package for Compliance with DOT Regulations in the Shipment of Environmental Laboratory Samples," Memo from David Weitzman, Work Group Chairman, Office of Occupational Health and Safety (PM-273), US-EPA, April 13, 1981. (copy in the library.)
- 5.6 Contract Laboratory Program (CLP) Guidance for Field Samplers, OSWER 9240.0-35, EPA540-R-00-003, (<http://www.epa.gov/superfund/programs/clp/guidance.htm#sample>).
- 5.7 Users' Guide for Acquiring Analytical Services, OASQA, Client Services Team, Current Version (<http://www.epa.gov/region03/esc/LabServices.htm>).

TABLE FOOTNOTES:

The following information applies to all parameters listed in the Sample Requirements Tables I, II, and III. Preservations, holding times, and container types are taken from the specific methods used for analysis or from federal register promulgated requirements.

¹ BLANKS

All parameters require the collection of at least one blank sample as described in Section 3.4.

- * *Field Blank* -- collected for every parameter to ensure that containers and preservatives (if required) are contamination free. It must be filtered if dissolved parameters are being analyzed.
- * *Rinsate Blank* (or equipment blank) -- collected if samples were filtered in the field or otherwise treated by mechanical or physical means that should be checked for carry-over contamination.
- * *Trip Blank* -- collected for volatile organics (VOCs) only. This blank is prepared prior to the sampling trip.
- * *Microbiological Blank* -- sterility check collected for the bacteriological samples only.
- * *Temperature Blank* -- placed in cooler whenever samples are required to be kept on ice. This is used for temperature verification only; it is not analyzed.

² LABORATORY QUALITY CONTROL REQUIREMENTS

The sampler must collect 3 times the minimum volume for at least one sample per batch of 10 -- for each parameter -- to use for quality control (QC) analysis. *It is extremely important that sufficient volume be collected.* (See Section 3.5 for further explanation.)

³ POLLUTION PREVENTION AND HAZARDOUS WASTE REDUCTION

If the sampling requirements (for preservation, sample containers, etc.) are exactly the same, **then one sample can be taken for several parameters in a single container if the volume will accommodate all analysis.** (See Section 4.0 for further explanation.) It is especially important to consolidate parameters when collecting solid samples because of the difficulty in disposing of the excess sample. Solids should be collected in a single 8 oz. container for either the organic or inorganic parameters. *If a parameter cannot be combined with other parameters, it is noted in the table.*

⁴ COMPOSITING SAMPLES

Normally, samples will not be composited in the laboratory. If it is appropriate or advantageous, compositing in the lab will be considered on a case-by-case basis. (Remember, samples for the determination of volatiles are not to be composited in the field because of possible loss of analyte.)

⁵ DISSOLVED ANALYSIS

Samples collected for analysis of dissolved components must be filtered in the field. A filtered Field Blank must also be collected for each new lot of filters. These are considered separate samples from the unfiltered aliquot, so a separate sample number will be needed on the chain-of-custody form.

⁶ DECHLORINATION

Only dechlorinate samples which actually contain chlorine. Chlorine presence may be determined using a color wheel or Hach kit.

If any of part of this document is unclear or if you want to verify the requirements, please call the laboratory for clarification. In addition, it is highly suggested that samples be transported to the laboratory as soon as possible after collection.

TABLE I
Aqueous Sample Requirements ¹

Parameter	Sample ^{4,5} Type	Container Type	Minimum ^{2,3} Volume	Preservation	Holding Time
Acidity	Grab or Composite	Glass or Plastic	500 ml	cool, 4°C	14 days
Acrylamide	Grab	Glass VOA 40-ml vial with Teflon lined cap	120 ml	cool, 4°C	14 days
Alcohols	Grab or Composite	Glass VOA 40-ml vial with Teflon lined cap	10 ml	cool, 4°C	7 days
Alkalinity	Grab or Composite	Glass or Plastic	500 ml	cool, 4°C	14 days
Anions by IC: Bromide Chloride Fluoride Nitrite Nitrate Ortho Phosphate Sulfate	Grab or Composite	Glass or Plastic	200 ml	cool, 4°C Ortho Phosphate must be field filtered.	48 hours - Nitrate 48 hours - Nitrite 48 hours - Ortho Phosphate 28 days - all others
Ammonia	Grab or Composite	Glass or Plastic	200 ml	cool, 4°C, sulfuric acid to pH<2	28 days
Bacterial Speciation	Grab	Glass or Plastic, <i>Sterile container</i>	120 ml with 1-inch air space in bottle	cool, 4°C, <i>0.1ml/120ml of sterile 10 % sodium thiosulfate</i> ⁶	6 hours
Biochemical Oxygen Demand (BOD)	Grab or Composite	Glass or Plastic	500 ml	cool, 4°C	48 hours
Bromide	Grab or Composite	Glass or Plastic	200 ml	cool, 4°C	28 days
Carbonaceous Biochemical Oxygen Demand (CBOD)	Grab or Composite	Glass or Plastic	500 ml	cool, 4°C	48 hours
Chemical Oxygen Demand (COD)	Grab or Composite	Glass or Plastic	200 ml	cool, 4°C, sulfuric acid to pH<2	28 days
Chloride	Grab or Composite	Glass or Plastic	200 ml	cool, 4°C	28 days
Chlorophyll & Pheophytin	Grab	Glass or Plastic, <i>Protect from sunlight!</i>	1000 ml	cool, 4°C, 1 ml/L magnesium carbonate solution	Filter within 24 hrs. store at -20°C 30 days
Coliform (total & fecal)	Grab	Glass or Plastic, <i>Sterile container</i>	120 ml with 1-inch air space in bottle	cool, 4°C, <i>0.1ml/120ml of sterile 10 % sodium thiosulfate</i> ⁶	6 hours (NPDES) 30 hours (SDWA)

TABLE I
Aqueous Sample Requirements ¹

Parameter	Sample ^{4,5} Type	Container Type	Minimum ^{2,3} Volume	Preservation	Holding Time
Color	Grab or Composite	Glass or Plastic	200 ml	cool, 4°C	48 hours
Corrosivity	Grab or Composite	Plastic	200 ml	none	analyze as soon as possible
Total Cyanide	Grab or Composite	Glass or Plastic	200 ml	<i>Dechlorinate⁶ with ascorbic acid, remove sulfides with cadmium carbonate, sodium hydroxide to pH>12, cool 4°C</i>	14 days 24 hours (if sulfides are present)
Diesel Range Organics (DROs)	Grab or Composite	Amber glass bottle w/Teflon lined cap	1000 ml (Cannot combine parameters)	cool, 4°C or acidify with 1:1 HCl to pH<2	7 days unpreserved, 14 days preserved
Dissolved Organic Carbon (DOC)	Grab or Composite	Glass or Plastic	100 ml	filter in field, sulfuric acid to pH<2, cool 4°C	28 days
Fluoride	Grab or Composite	Glass or Plastic	200 ml	none	28 days
Hardness	Grab or Composite	Glass Plastic	200 ml	cool, 4°C, nitric acid to pH<2	6 months
Heterotrophic Plate Count (HPC)	Grab	Glass or Plastic, <i>Sterile container</i>	120 ml with 1-inch air space in bottle	cool, 4°C, <i>0.1ml/120ml of sterile 10 % sodium thiosulfate⁶</i>	8 hours
Hexavalent Chromium	Grab	Glass or Plastic	200 ml	cool, 4°C	24 hours
Ignitability	Grab or Composite	Glass VOA 40-ml vial	300 ml	none	analyze as soon as possible
Infrared (IR) screen	Grab or composite	Glass or Plastic	100 ml	cool, 4°C	same as parameter of concern
LCMS screen	Grab or Composite	Amber glass bottle w/Teflon lined cap	1000 ml (Cannot combine parameters)	cool, 4°C	7 days
Mercury	Grab or Composite	Glass preferred	200 ml	nitric acid to pH<2	28 days
Metals	Grab or Composite	Glass or Plastic	200 ml	nitric acid to pH<2	6 months
Methane/Ethane/ Ethene	Grab	Glass VOA 40-ml vial w/Teflon lined cap	120 ml (3 vials filled with no headspace)	cool, 4°C May acidify with 1:1 hydrochloric acid to pH<2. for longer holding time.	7 days unpreserved 14 days preserved

TABLE I
Aqueous Sample Requirements ¹

Parameter	Sample ^{4,5} Type	Container Type	Minimum ^{2,3} Volume	Preservation	Holding Time
Nitroaromatics + Nitramines, Explosives	Grab or Composite	Amber glass bottle w/Teflon lined cap	1000 ml (Cannot combine parameters)	cool, 4°C	7 days
Nitrogen, Nitrate	Grab or Composite	Glass or Plastic	200 ml	cool, 4°C	48 hours
Nitrogen, Nitrite	Grab or Composite	Glass or Plastic	200 ml	cool, 4°C	48 hours
Nitrogen, Nitrate & Nitrite combined	Grab or Composite	Glass or Plastic	200 ml	cool, 4°C, sulfuric acid to pH<2	28 days
Nitrogen, Total Kjeldahl (TKN)	Grab or Composite	Glass or Plastic	200 ml	cool, 4°C, sulfuric acid to pH<2	28 days
Nitroglycerin	Grab or Composite	Amber glass bottle with Teflon lined cap	1000 ml (Cannot combine parameters)	cool, 4°C	7 days
Oil & Grease	Grab	Glass wide- mouth jar (<i>contact lab for jar details</i>)	two - 1000 ml containers (Cannot combine parameters)	cool, 4°C, sulfuric or hydrochloric acid to pH<2	28 days
Perchlorate	Grab or Composite	Glass or Plastic	200 mL	cool, 4°C	28 days
Polyaromatic Hydrocarbons (PAHs) by GC/MS	Grab or Composite	Amber glass bottle w/Teflon lined cap	two - 1000 ml containers (Cannot combine parameters)	cool, 4°C	7 days
PCB/Pesticides	Grab or Composite	Amber glass bottle w/Teflon lined cap	two - 1000 ml containers (Cannot combine parameters)	cool, 4°C	7 days
Phenolics, Total	Grab or Composite	Glass	1000 ml	Dechlorinate ⁶ with excess ferrous ammonium sulfate, sulfuric acid to pH<2, cool, 4°C	28 days
Phosphorus, Ortho	Grab or Composite	Glass or Plastic	200 ml	cool, 4°C	48 hours
Phosphorus, Total	Grab or Composite	Glass or Plastic	200 ml	cool, 4°C, sulfuric acid to pH<2	28 days

TABLE I
Aqueous Sample Requirements ¹

Parameter	Sample ^{4,5} Type	Container Type	Minimum ^{2,3} Volume	Preservation	Holding Time
Semivolatiles (SVOAs)	Grab or Composite	Amber glass bottle w/Teflon lined cap	two - 1000 ml containers (Cannot combine parameters)	cool, 4°C	7 days
Silica	Grab or composite	Plastic	200 ml	nitric acid to pH<2	6 months
Solids, Total (TS)	Grab or Composite	Glass or Plastic	500 ml	cool, 4°C	7 days
Solids, Total Dissolved (TDS)	Grab or Composite	Glass or Plastic	500 ml	cool, 4°C	7 days
Solids, Total Suspended (TSS)	Grab or Composite	Glass or Plastic	500 ml	cool, 4°C	7 days
Solids, Total Volatile (TVS)	Grab or Composite	Glass or Plastic	500 ml	cool, 4°C	7 days
Sulfate	Grab or Composite	Glass or Plastic	200 ml	cool, 4°C	28 days
Sulfide	Grab	Glass or Plastic	600 ml (2 - 300 ml BOD bottles)	cool, 4°C, zinc acetate & sodium hydroxide to pH>9	7 days
TCLP - Semivolatiles (SVOAs)	Grab or Composite	Amber glass bottle w/Teflon lined cap	At least 1000 ml	cool, 4°C (unless cooling causes precipitation of the waste)	14 days
TCLP - Herbicides	Grab or Composite	Amber glass bottle w/Teflon lined cap	At least 1000 ml	cool, 4°C (unless cooling causes precipitation of the waste)	14 days
TCLP - Metals	Grab or Composite	Glass or Plastic	At least 1000 ml	cool, 4°C (unless cooling causes precipitation of the waste)	180 days
TCLP - Mercury	Grab or Composite	Glass or Plastic	At least 1000 ml	cool, 4°C (unless cooling causes precipitation of the waste)	28 days
TCLP - Pesticides	Grab or Composite	Amber glass bottle w/Teflon lined cap	At least 1000 ml	cool, 4°C (unless cooling causes precipitation of the waste)	14 days

TABLE I
Aqueous Sample Requirements ¹

Parameter	Sample ^{4,5} Type	Container Type	Minimum ^{2,3} Volume	Preservation	Holding Time
TCLP - Volatiles (VOAs)	Grab	Glass VOA 40 - ml vial w/Teflon lined cap	160 ml (4 vials filled with no headspace)	cool, 4°C	14 days
Total Toxic Organics (TTO) by 40 CFR Part 433.11	Grab or Composite	Follow requirements for PCB/Pesticides, Semivolatiles, and Volatiles.	Follow requirements for PCB/Pesticides, Semivolatiles, and Volatiles.	Follow requirements for PCB/Pesticides, Semivolatiles, and Volatiles.	Same as for PCB/Pesticides, Semivolatiles, and Volatiles.
Total Organic Carbon (TOC)	Grab or Composite	Glass or Plastic	100 ml	cool, 4°C, sulfuric acid to pH<2	28 days
Total Petroleum Hydrocarbon (TPH)	Grab	Glass wide-mouth jar	1000 ml (Cannot combine parameters)	<i>(contact lab for specifics)</i>	<i>(contact lab for specifics)</i>
Turbidity	Grab	Glass or Plastic	200 ml	cool, 4°C	48 hours
Volatiles (VOAs)	Grab	Glass VOA 40-ml vial w/Teflon lined cap	120 ml (3 vials filled with no headspace)	cool, 4°C Dechlorinate ⁶ with sodium thiosulfate (10mg/40ml) BEFORE acidifying with 1:1 hydrochloric acid to pH<2. For RCRA and NPDES, samples must be submitted both preserved and unpreserved <i>if 2-chloroethyl vinyl ether is an analyte of interest</i> . This is due to losses of 2-chloroethyl vinyl ether in acidified samples.	7 days unpreserved 14 days preserved

TABLE II
Non-Aqueous Sample Requirements ¹

Parameter	Sampling ⁴ Type	Container Type	Appropriate ^{2,3} Weight	Preservation	Holding Time
Anions by IC: Bromide Chloride Fluoride Nitrite Nitrate Ortho Phosphate Sulfate	Grab or Composite	Glass (4 oz. wide-mouth)	50 g	cool, 4°C	none
Benthic Invertebrate Taxonomy	Grab	Glass	N/A	70% ethanol	none
Chemical Oxygen Demand (COD)	Grab or Composite	Glass (4 oz. wide-mouth)	50 g	cool, 4°C	28 days
Cyanide, Total	Grab or Composite	Glass (4 oz. wide-mouth)	50 g	cool, 4°C	28 days
Diesel Range Organics (DROs)	Grab or Composite	Amber Glass (4 oz. wide- mouth w/Teflon lined lid)	50 g	cool, 4°C	14 days
Density	Grab or Composite	Glass (4 oz. wide-mouth)	50 g	none	none
Dry Weight, Percent	Grab or Composite	Glass (4 oz. wide-mouth)	50 g	none	none
Grain Size	Grab	Heavy plastic bag or glass jar	500 g	cool, 4°C	none
Hexavalent Chromium	Grab	Glass (4 oz. wide- mouth)	50 g	cool, 4°C	30 days
Ignitibility	Grab or Composite	Glass (8 oz. wide-mouth)	100 g	none	none
Infrared (IR) Screen	Grab or Composite	Glass (4 oz. wide-mouth)	50 g	cool, 4°C	see parameter of interest
LCMS screen	Grab or Composite	Amber Glass (4 oz. wide- mouth w/Teflon lined lid)	50 g	cool, 4°C	14 days
Mercury	Grab or Composite	Glass (4 oz. wide-mouth)	50 g	cool, 4°C	28 days
Metals	Grab or Composite	Glass (4 oz. wide-mouth)	50 g	none	6 months
Nitroaromatics + Nitramines, Explosives	Grab or Composite	Amber Glass (4 oz. wide- mouth w/Teflon lined lid)	50 g	cool, 4°C	7 days
Nitrogen, Total Kjeldahl (TKN)	Grab or Composite	Glass (4 oz. wide-mouth)	50 g	cool, 4°C	28 days
Nitroglycerin	Grab or Composite	Amber Glass (4 oz. wide- mouth w/Teflon lined lid)	50 g	cool, 4°C	7 days
Paint Filter Test	Grab	Glass or plastic	500 g	cool, 4°C	none

TABLE II
Non-Aqueous Sample Requirements ¹

Parameter	Sampling ⁴ Type	Container Type	Appropriate ^{2,3} Weight	Preservation	Holding Time
Polyaromatic Hydrocarbons (PAHs) by GC/MS	Grab or Composite	Amber Glass (4 oz. wide- mouth w/Teflon lined lid)	50 g	cool, 4°C	14 days
PCB/Pesticides	Grab or Composite	Amber Glass (4 oz. wide- mouth w/Teflon lined lid)	50 g	cool, 4°C	14 days
PCBs in oil	Grab	Glass VOA 40-ml vial w/Teflon lined cap	40 g	cool, 4°C	none
Phenolics, Total	Grab or Composite	Glass (4 oz. wide-mouth)	50 g	cool, 4°C	28 days
Phosphorus, Total	Grab or Composite	Glass (4 oz. wide-mouth)	50 g	cool, 4°C	28 days
Semivolatiles (SVOAs)	Grab or Composite	Amber Glass (4 oz. wide- mouth w/Teflon lined lid)	50 g	cool, 4°C	14 days
TCLP - Semivolatiles (SVOAs)	Grab or Composite	Amber Glass (8 oz. wide- mouth w/Teflon lined lid)	200 g	cool, 4°C	14 days
TCLP - Herbicides	Grab or Composite	Amber Glass (8 oz. wide- mouth w/Teflon lined lid)	200 g	cool, 4°C	14 days
TCLP - Mercury	Grab or Composite	Glass (8 oz. wide-mouth)	200 g	cool, 4°C	28 days
TCLP - Metals	Grab or Composite	Glass (8 oz. wide-mouth)	200 g	cool, 4°C	180 days
TCLP - Pesticides	Grab or Composite	Amber Glass (8 oz. wide- mouth w/Teflon lined lid)	200 g	cool, 4°C	14 days
TCLP - Volatiles (VOAs)	Grab	Glass VOA 40-ml vial w/Teflon lined cap	160 g (4 vials filled with no headspace)	cool, 4°C	14 days
Total Petroleum Hydrocarbons (TPHs) (<i>contact lab for specifics</i>)	Grab or Composite	Glass (4 oz. wide-mouth)	50 g	cool, 4°C	14 days
Volatiles (VOAs)	Grab	Glass VOA 40-ml vial w/Teflon lined cap	80 g (2 vials filled with no headspace)	cool, 4°C	14 days
X-Ray for Metals in Soils and Solids	Grab or Composite	Glass (4 oz. wide-mouth)	50 g	none	none

TABLE III
SDWA Program *Special Requirements*^{1, 6}

Parameter	Sampling ^{4,5} Type	Container Type	Minimum ^{2,3} Volume	Preservation	Holding Time
Coliform (total & fecal)	Grab	Glass or Plastic, <i>Sterile</i>	120 ml with 1- inch air space in bottle	cool, 4°C, 0.1ml/120ml of sterile 10 % sodium thiosulfate ⁶	<i>30 hours</i>
Heterotrophic Plate Count (HPC)	Grab	Glass or Plastic, <i>Sterile container</i>	120 ml with 1-inch air space in bottle	cool, 4°C, 0.1 ml/120ml of sterile 10% sodium thiosulfate ⁶	<i>8 hours</i>
Pesticides	Grab or Composite	Amber glass bottle w/Teflon lined cap	two - 1000 ml containers (Cannot combine parameters)	cool, 4°C, <i>6 N HCl to pH ≤ 2, dechlorinate⁶ w/50 mg sodium sulfite</i>	7 days
Semivolatiles (SVOAs)	Grab or Composite	Amber glass bottle w/Teflon lined cap	2 - 1000 ml containers (Cannot combine parameters)	cool, 4°C, <i>hydrochloric acid to pH<2, dechlorinate⁶ w/40-50 mg/L sodium sulfite</i>	7 days
Total Trihalomethanes (TTHMS)	Grab	Glass VOA 40-ml vial w/Teflon lined cap	120 ml (3 vials filled with no headspace)	cool, 4°C, dechlorinate ⁶ with 4mg/40ml sodium thiosulfate or sodium sulfite	14 days
Volatiles (VOAs)	Grab	Glass VOA 40-ml vial w/Teflon lined cap	120 ml (3 vials filled with no headspace)	cool, 4°C, dechlorinate ⁶ with either <i>10mg/40ml sodium thiosulfate OR 25mg/40ml ascorbic acid</i> BEFORE acidifying with 1:1 hydrochloric acid to pH<2.	7 days unpreserved, 14 days preserved

Project Code	Station No.	Month/Day/Year	Time	Designate:	Grib	Preservative: Yes <input type="checkbox"/> No <input type="checkbox"/> ANALYSES BOD Anions Solids (RSS) (TDS) (SS) COD, TOC, Nutrients Phenolics Mercury Metals Cyanide Oil and Grease Organics GC/MS Priority Pollutants Volatile Organics Pesticides Mutagenicity Bacteriology _____ _____ Remarks:
				Comp.		
				Samplers (Signatures)		
Station Location						
Tag No. Lab Sample No. <div style="text-align: center; font-size: 1.5em;">3-3002126</div>						

CUSTODY SEAL

Date _____

Signature



Signature

Date _____

CUSTODY SEAL

Attachment 2 - Hazard and Risk Exposure Data Sheet

Region III, Office of Analytical Services and Quality Assurances
Ft. Meade, Maryland

HAZARD AND RISK EXPOSURE DATA SHEET LEVELS OF PERSONAL PROTECTION DURING SAMPLING

BACKGROUND

Under the authority Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment.

GENERAL

This form is to be used when collecting Environmental Samples (i.e. streams, farm ponds, wells, soils etc.) and for Hazardous Samples (i.e. drums, storage tanks, lagoons, leachates, hazardous waste sites). This information is intended for use as a guide for the safe handling of these laboratory samples in accordance with EPA and OSHA regulations. The sample classifications and levels of personal protection used by the sampler in all situations will enable the analyst to be better aware of potential exposure to substances in air, splashes of liquids, or other direct contact with material due to work being done.

DEGREE OF PROTECTION

- Level A: Highest level of respiratory, skin, and eye protection needed. Fully encapsulated suit, respirator self-contained (Tank type).
- Level B: Highest level of respiratory protection but lesser level of skin protection needed. Chemical suit, respirator self-contained (Tank type).
- Level C: Lesser level of respiratory protection than Level B. Skin protection criteria are similar to Level B. Chemical suit, canister respirator/cartridge.
- Level D: Work uniform without any respirator or skin hazards. Lab coat, gloves etc.

CLASSIFIED FIELD SAMPLES

_____ Environmental _____ Hazardous _____ Comb. (Env. & Haz.) _____ Radioactive

Site Name: _____ Sampling Date: _____

Sta No. _____, _____, _____, _____, _____, _____

Field pH: _____, _____, _____, _____, _____, _____

(must be taken prior to submission of aqueous samples)

Sampler: _____, Work Phone Number: _____

Personal observations at time of sampling (surroundings): _____

Sample collection observations (physical sample, odors etc.): _____

Attachment 3 - OASQA Sample Acceptance/Rejection Policy

The following are those conditions which indicate that the integrity of the sample may have been jeopardized, either during the actual sampling event or during its shipment to the lab. If one or more of these conditions exist, the laboratory will decide, on a case-by-case basis in consultation with the requestor, either to reject the sample(s) for analysis or to perform a qualified analysis. If the lab rejects the sample(s) for analysis the requestor will be notified and given the opportunity to re-sample. If the analysis is performed, the data will be reported with qualifiers explaining why the data may have been compromised, and the potential impact on the data. The condition of sample(s) and shipment will be documented on the OASQA Shipment Documentation Form. The Sample Scheduling Coordinator may request a Letter-To-File from the sampler to document additional critical details. Any actions taken because of the compromised condition of a sample will be noted in the laboratory's information management (RLIMS) database and in the report narrative sent the requestor.

Conditions which may jeopardize the integrity of the sample:

- Not collected in appropriate containers.
- If cooling is required for the requested analytes, samples are received at greater than 6 degrees C or missing the temperature blank.
- Not properly preserved as outlined in Tables I, II, and III of the Region III QASQA Sample Submission Guidelines.
- Received past the analytical holding time.
- Samples tampered with during shipment. (Example: custody seal has been broken)
- Insufficient sample to perform sample analysis or the quality control analysis.
- Sample identification incorrect, incomplete, or missing.
- Chain-of-custody documentation not available, inaccurate or incomplete (see Sample Submission Guidelines).
- Samples sent without appropriate notification.
- Samples inappropriate for requested analysis. (Example: decomposed condition)
- Leaking or broken container.
- Lack of a trip blank with samples collected for volatile analysis.

Samples suspected to contain Dioxin cannot be analyzed at OASQA.

